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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,590	07/23/2003	Dirk Heinrich	233812US0	7530

22850 7590 06/05/2007

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EXAMINER	
PADGETT, MARIANNE L	

ART UNIT	PAPER NUMBER
1762	

NOTIFICATION DATE	DELIVERY MODE
06/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/624,590	HEINRICH ET AL.	
	Examiner	Art Unit	
	Marianne L. Padgett	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,10,11,15-17,19,21 and 22* is/are pending in the application.

4a) Of the above claim(s) *21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7, 10-11, 15-17, 19, 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Claims 1-7, 10-11, 15-17, 19 & 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-7, 10-11, 15-17, 19 & 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 has been amended such that the preamble now requires coding "a piper", which is by definition a person who pipes, which does not make sense in context of the body of the claim concerning treatment & coating a "pipe", thus the examiner believes that this is a typographical error, hence for purposes of examination over the art -- a pipe -- will be considered, instead of "a piper". However as presently written, the claim has formal problems of the preamble directed to "a piper" not being commensurate in scope with the body of the claims & dependent claims directed to "the pipe", nor providing appropriate antecedent basis thereto, as well as the probably inadvertently introduced "piper" not being supported by the original specification, hence to officially constituting New Matter.

In claim 15, line 4, the insertion of "at a frequency from 2,000 Hz" between "coil" & "before melting" creates effect a phrase that is not idiomatic English & whose meaning is uncertain, since it has the appearance of starting to claim a range, but not finishing the phrase, such that the intent is unclear. However, given in the phraseology used else wherein the claims concerning "frequency from 2,000 to 10,000 Hz", the amendment to claim 15 could be taken to mean an open ended range starting at 2000 Hz, which would not be supported by the specification, nor the original claim 15, as "a medium frequency", which the amendment to claim 15 appears to be replacing, is not an unlimitedly open ended range, nor do the specific frequency teachings found in specification (page 5, lines 3-10), provide for such an open-ended range, hence the amendment to claim 15 also appears to encompass New Matter as written.

2. With respect new claim 22, given the timing provided in the claim, hence the context, it might be assumed that the statement in line 2 thereof "before the pipe is coated" is referring to --with the coating material--, since the primer which also may be considered to have been coated on the pipe is required to already be present, however the claim does not actually specify what "coated" refers to, nor does the language necessitate antecedent basis to the claim 1 limitation of "coating the pipe...". Note that this is an observation on potential scope, which is not necessarily a problem of clarity for what the claim literally says, however applicants may wish to consider it with respect to their intent.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-7, 10-11, 15-17, 19 & 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quresti et al. (4,771,523), in view of Winkle, Sr. et al. (5,176,755) or Creps (4,358,887), and further in view of Facer et al. (3,560,239) and Kamimura et al. (3,616,983).

Applicant has amended their claims to include limitations previously required in claims 8-9 & 18, plus limitations concerning the effects of the air flush system & flow guide panels in the independent claim. New claim 22 appears to be a replacement for canceled claim 14, which has been modified to consider the amendments to the independent claim.

As previously discussed, Quresti et al. (523) teach nylon coating metal tubing on the exterior via a sequence of steps that includes **cleaning**, then heating, then galvanizing, (then optionally metal treating, such as via a chromating or **phosphating**), then requiring **drying**, then **priming** with a sprayed **liquid**, then **preheating via induction heating**, then powder coating via a **fluidized bed technique** with over the **fusible powder**, such as nylon 11 or 12, then **induction heating which produces a high gloss** surface finish, i.e. smooth. Thereafter, Quresti has an additional fluidized bed coating, which is not excluded by applicants' claims, and cooling/quenching. Quresti teaches closely controlling the thickness of the coatings, where the thickness of the first powder coating is 2.5-4 ≈ 63-102 μm. See the abstract; figures; col. 1, lines 5-10 & 24-54; col. 2, lines 17-49 & 62-68; col. 3, lines 43-col. 5, lines 26 & 54-col. 6, lines 3, 11-30 & 37-41. Note during the induction post powder deposition heating that the coated material will inherently initially softened and smooth as it proceeds to heat sufficiently to melt. Note that induction heating inherently uses radio frequencies and but Quresti differs by not disclosing what frequencies are employed.

It is noted that **Quresti et al**. when discussing fluidized bed processes on col. 4, lines 60-68, teach that such processes are known in the art and **cites USPN 3,616, 983 to Kamimura et al**. as employing such **fluidized bed processes**. While the primary reference has a schematic flow diagram instead of a fully illustrated apparatus structure, Kamimura et al, whose processes are stated to be used in Quresti et

al., shows apparatus schematics that incorporate the heater 34, which may be inductive heating, as attached to the input of the fluidized bed structure, inclusive of fluidized type dipping systems or fluidized type electrostaticspray systems (figure 1B, 5-9; col. 3, lines 25-col. 4, line 44), where various apparatus show alternative flow configurations, including flow directions from all angles or from below, hence the apparatus/method of Quresti et al. that teaches employing those of Kamimura et al. can be considered to incorporate the flow direction from above & the inductive heaters in the structure of the fluidized bed basin, since how or where they are incorporated in the fluidized beds/basins' structure is not explicitly specified by the claim language, so is inclusive of incorporation at inputs or outputs which are part of the basin, thus consistent with taught process sequences, plus inclusion of the induction coil incorporated as part of the fluidizing bed basin into the independent claim, was not seen to provide patentable significance with respect to teachings of applied prior art, particularly the primary reference, as it incorporates the teachings of Kamimura et al.

It was previously noted that, Quresti et al. does not teach that pulverulent fusable powder may be formed of a precipitated powder, nor do they provide a mean deviations for their coating thickness or disclose and if their sprayed priming liquid contains a suspension a solution or a powder. It would have been obvious to one of ordinary skill in the art to employ conventional means of initially forming a powder source material, which includes precipitating nylon materials from solution, which one may then mill to get the desired size of the pulverulent polymer, because use of a precipitated powder would require less work to get a powder to the desired size than starting with a solid block of polymer to grind.

As Quresti et al. teaches closely controlling thicknesses of the powdered nylon coatings, it would have been obvious to one of ordinary skill in the art that the mean thickness deviations would have been minimized, hence expected to be controlled within limits as claimed by applicants.

As suspensions or solutions are typical forms of liquid coating materials that may be sprayed and used as primers, it would have been obvious to one of ordinary skill in the art to use such typical means of

formulating a liquid priming material due to suggestions of the primer being a liquid and expectations of their being effective means of delivery. Given that suspensions and solutions generally involve the use of solvents the subsequent preheating step would inherently cause evaporation of any solvent present to occur.

As previously discussed the claims require induction heating using frequencies of 2000-10,000 Hz, i.e. 2-10 kHz. While Quresti et al. does not disclose any particular frequency for use in their induction heating process to melt the powdered fusable powder, such as nylon, it would have been obvious to one of ordinary skill in the art to look to the prior art for appropriate frequencies at which to fuse the plastic powders as taught. Creps (abstract; col. 3, lines 33-43; and col. 5, lines 56-63) teach plastic coating metal pipes with use of the induction heaters employing 3000 Hz to melt plastic particles adhering thereto, and thus create a clear plastic coating over the entire surface of a pipe. Alternately & analogously, Winkle, Sr. et al. (abstract; col. 4, lines 39-53; col. 5, on 43-col. 6, line 15) teach coating a metal strip with a plastic powder that is melted via induction heating, where a low frequency of less than 10 kHz is preferably used, with teachings that the frequency employed depends on thicknesses of materials involved. From either of these teachings it would have been obvious to one of ordinary skill in the art to determine via routine experimentation the appropriate frequencies to employ in Quresti et al.'s induction heating process in order to melt the taught fusable powders such as nylon, using suggested frequencies as the starting point for that routine experimentation, which would therefore have been expected to provide usable frequencies as claimed due to the similarity of materials involved both as coating and substrate.

As previously discussed, Quresti does not in the body of it specification have explicit details of various claimed air movement systems employed in various heating and fluidized in steps, **and with the 3/12/2007 amendment**, applicants have further amended the air flush system & flow guide panels claimed for their fluidized bed basin to require that the air flush system positioned above the pipe be effective to "eliminate powder accumulations" & and that the one or more metal flow guide panels below

the pipe be effective to "eliminate powder deficit and resultant pores on the underside of the pipe". However, Facer et al., who is teaching an analogous process to be employed on cleaned, liquid primed, induction dried wires to coat those wires or like elongated structures with powdered resin is inclusive of nylon, teach air movement in the various steps, such as fans (88) or suggested air manifolds (78) or air seals and guide panels (90), where col. 3, lines 58-62 teach that the system inclusive of the fan act as a mean for drawing fumes and air, thus are a flushing system, and where as illustrated in figure 3 the fan, manifold system & guide panels are above the wire, and is taught on col. 3, lines 30-35 they functioned so as to "prevent agglomeration of the resin at the wire entrance and exit points", which is equivalent to the claimed "eliminate powder accumulation", as accumulation would be a form of agglomeration. Also, it was particularly noted that the fluidized bed powder coating chamber illustrated in figure 3 has on the bottom diffusion board 74 through which air passes to maintain the bed in the fluidized state, with inner wall 82 of manifolds 78 having closely spaced holes that are connected via conduit 86 to suction fan 88, thus having positioned above the object being coated in air system which draws air out of the chamber thus flushing it (col. 2, lines 35-40 & col. 3, lines 25-35). Note that diffusion board 74 is a planar surface, hence may be considered a panel(s), where the airflow through the diffusion board is analogous to that in figures 8 & 9 of Kamimura et al., clearly provides guidance to the powder, inclusive of guiding powder to the underside of the pipe, hence effective use of this configuration would have been expected to be effective of ensuring sufficient powder provided to the underside of the pipe which would have been expected to prevent formation of undesired pores i.e. holes" in that portion of the coating. While these references, such as Facer et al., Kamimura et al. or Quresti et al. do not explicitly discuss powder deficit or a problem with pores on the underside of the elongated substrates being coated, the examiner takes notice that it is old and well-known that one purpose of using fluidized bed coating systems is to enable uniform coating of all sides of such three-dimensional objects. Hence, it would have been further obvious to one of ordinary skill in the art to employ such conventional means for air movement, and flow control

configurations as they would have provided affects as discussed in Facer et al., such as for the ability to draw off fumes via suction caused by a fan, or to prevent agglomeration of the resin, as well as expected uniform coating provided by fluidized bed, which would have been equally advantageous in Quresti et al, who suggests any known electrostaticspray or electrostatic fluidized bed processes known in the art may be employed (col. 4, lines 60-65), and would have provided cumulative fluidized bed processing details/instructions to those provided by Kamimura et al. suggested in Quresti et al., as Facer et al. also suggest a related sequential process of coating a clean substrate, applying a primer to the wire, drying the primer, then preheating the substrate with an induction coil, followed by fluidized bed coating & more induction heating. In Facer et al, see figures; abstract; col. 1, lines 54-71+; col. 2, lines 34-66; col. 3, lines 1-62.

Further concerning "one or more metal-flow panels position below the pipe", the limitation still does not say what is being guided or the means by which the panels provide guidance, however presumably it is the fluidized material or the gas fluidized in it, etc., since as amended the metal flow guide panels positions must enable the process "to eliminate powder deficit and resultant pores on the underside of the pipe", hence it continues to be noted that any surface with in the chamber will act as a guide towards fluidized materials in the chamber, including those below the substrate being passed through it, thus reading on possible meanings of flow guide panels. The diffusion board 74 below the substrate which is particularly blowing powder up towards the underside of the substrate, would clearly due to its configuration be effective for eliminating any deficit of powder under the substrate which could result in pores on the underside of the substrate. The materials that apparatus parts such as diffusion boards are made out of (as the examiner assumes that metal is what the claimed panels are made out of , not what is being guided) would have been expected to have been made of a durable material, which for processing chambers typically constitutes metal, hence it would've been obvious that one of ordinary skill in the art to employ such conventional construction materials for chambers due to their required structural

integrity. Note that Kamimura et al. is porous plate 41 in figures 8 or 9 could be considered a flow guide plate position as claimed (col. 4, lines 5-10 & 30-37), but also does not discuss the material of which is made, hence one of ordinary skill would have been expected to choose its construction material as discussed above. The material of Facer et al.'s similarly positioned diffusion plate is also not disclosed, however individually or in combination these references show the conventionality of panels positioned under substrates whose undersides are being coated & which affect the flow of the fluidized material so as to effectively coat those substrates, including their undersides.

5. With respect to previous rejection of claims 1, 14 & 19 under 35 U.S.C. 103(a) over Church (3,108,022), in view of Winkle, Sr. et al. (5,176,755) or Creps (4,358,887), applicants have included dependent claims in the independent claim not previously included in this rejection, hence overcoming the rejection is written. It is noted that Church remains of interests to the fluidized bed coating process for reasons as discussed in section 5 of the action mailed 10/10/2006, particularly noting discussion therein concerning heating for the analogous process which includes alternatives of heating inside the fluidized bed chamber, as well as induction heating at the entrance port. Church is various means of fluidizing & flushing the system also remain of interest & cumulative to the above rejection, for showing such systems old and well-known in the fluidized bed art.

6. Applicant's arguments filed 3/12/2007 and discussed above have been fully considered but they are not persuasive.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

5/29/2007

MARIANNE PADGETT
PRIMARY EXAMINER